



STATEMENT OF BASIS

AREA 55

SOLID WASTE MANAGEMENT UNIT NO. 52

45TH SPACE WING

CAPE CANAVERAL AIR FORCE STATION

BREVARD COUNTY, FLORIDA



PURPOSE OF STATEMENT OF BASIS

This Statement of Basis (SB) has been developed in order to inform the public and give the public an opportunity to comment on a proposed remedy to clean up contamination at Area 55. A 45th Space Wing (45th SW) installation restoration partnering (IRP) team consisting of United States Air Force (USAF),

Brief Site Description

Area 55 is located on the north side of Lighthouse Road (See Figure 1). The facility was constructed in 1956 for the testing of guidance systems and was later used to support Delta program activities at nearby Space Launch Complex 17.

United States Environmental Protection Agency (USEPA), the State of Florida Department of Environmental Protection (FDEP), the U. S. Army Corps of Engineers, and various environmental consultants have determined that the proposed remedy is cost effective and

protective of human health and the environment. However, prior to implementation of the proposed remedy, the 45th SW IRP team would like to give an opportunity for the public to comment on the proposed remedy. At any time during the public comment period, the public may comment as described in the "How Do You Participate" section of the SB. Upon closure of the public comment period, the 45th SW IRP team will evaluate all comments and issues raised in the comments and determine if there is a need to modify the proposed remedy prior to implementation.

WHY IS CLEANUP NEEDED?

The results of the Resource Conservation and Recovery Act (RCRA) Facility Investigation

(RFI) indicated that volatile organic compounds and semi-volatile organic compounds (listed in Table 1) are present in the groundwater at levels that could be potentially harmful to human health.

HOW DO YOU PARTICIPATE?

The 45th SW IRP team solicits public review and comment on this SB prior to implementation of the proposed remedy as a final remedy. The final remedy for Area 55 will eventually be incorporated into the Hazardous and Solid Waste Amendments (HSWA) Permit for Cape Canaveral Air Force Station (CCAFS).

The public comment period for this SB and the proposed remedy will begin on the date that a notice of the SB's availability is published in a major local newspaper of general circulation. The public comment period will end 45 days thereafter. If requested during the comment period, the 45th

The Clean-up Remedy

The proposed clean-up remedy for Area 55 includes (but is not limited to) the following components:

- Natural attenuation of groundwater to remove contaminants through natural processes, primarily biodegradation.
- Implementation of land use controls designed to prevent exposure to site contaminants. These include:
 - Prohibition of residential development
 - Periodic monitoring of groundwater to document water quality and contaminant levels
 - Posting warning signs on-site

A complete list of land use controls and other protective measures are found in the Area 55 Land Use Control Implementation Plan (LUCIP).

SW IRP team will hold a public meeting to respond to any oral comments or questions regarding the proposed remedy. To request a hearing or provide comments, contact the following person in writing within the 45-day comment period:

Mr. Jorge Caspary
FDEP-Bureau of Waste Cleanup
2600 Blair Stone Road, MS-4535
Tallahassee, FL 32399-2400
E-mail: Jorge.Caspary@dep.state.fl.us
Telephone: (850) 921-9986

The HSWA Permit, the SB, and the associated Administrative Record, including the RFI Report, will be available to the public for viewing and copying at:

Environmental Management, CEV/ESC
Facility 1638, Samuel Phillips Parkway
Cape Canaveral Air Force Station, FL
For public access call (321) 853-0965

This information can also be found on-line at
http://www.mission-support.org/45SW_IRP_EA

The HSWA Permit, the SB, and Area 55 Report summaries will be available for viewing and copying at:

Central Brevard Library
308 Forrest Avenue
Cocoa, FL, 32922

To request further information, you may contact one of the following people:

Ms. Teresa Green
Environmental Restoration Element Chief
45 CES/CEVR
1224 Jupiter Street
Patrick Air Force Base, FL 32925-3343
E-mail: teresa.green@patrick.af.mil
Telephone: (321) 853-0965

Mr. Jorge Caspary
See previous contact information

Mr. Timothy R. Woolheater, P. E.
EPA Federal Facilities Branch
Waste Management Division
Sam Nunn Atlanta Federal Center
61 Forsyth Street
Atlanta, GA 30303-8960
E-mail: woolheater.tim@epamail.epa.gov
Telephone: (404) 562-8510

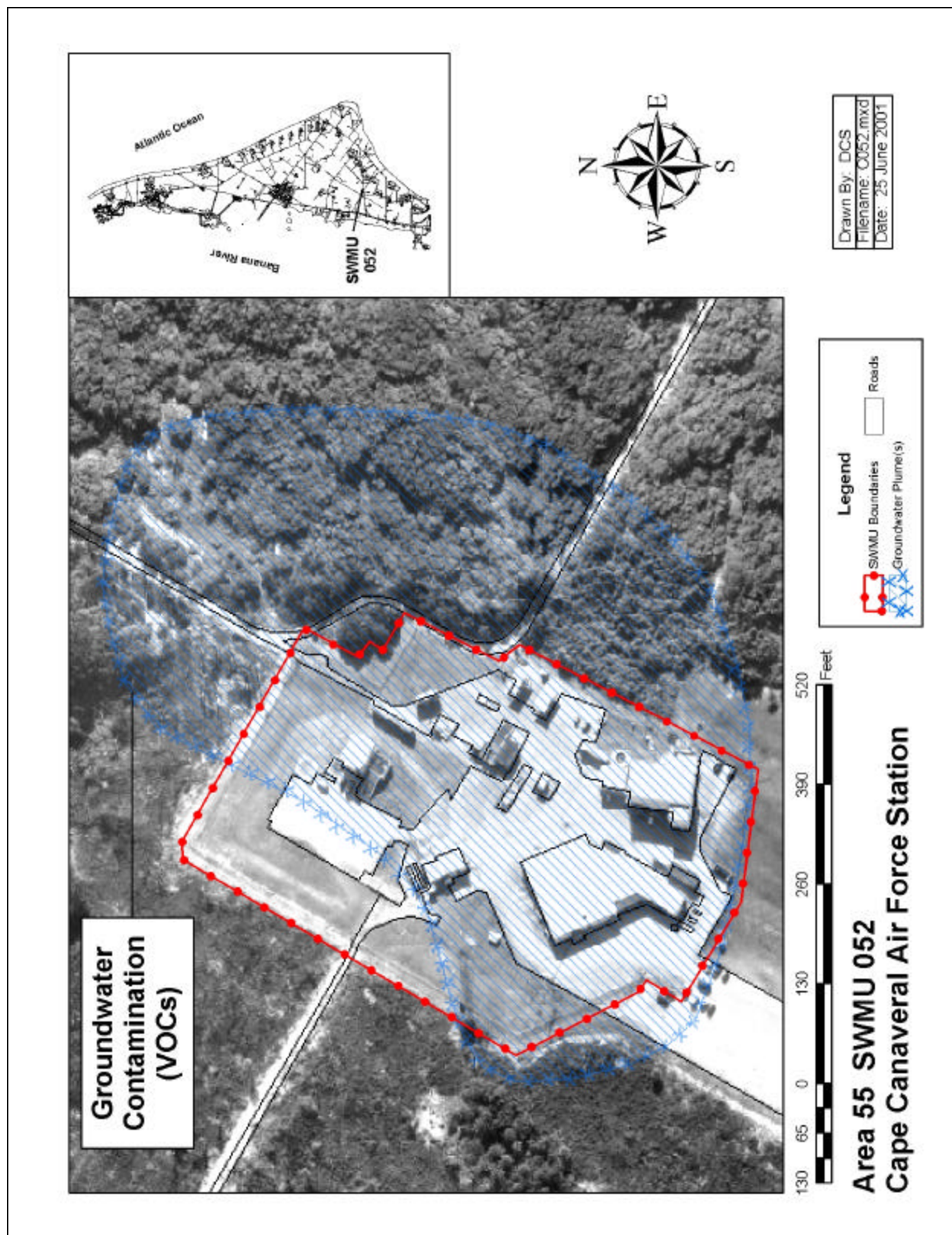
FACILITY DESCRIPTION

USAF established the 45th SW as the primary organization for the Department of Defense aerospace force programs. Historically, the National Aeronautics and Space Administration (NASA) also performed space launch related operations on the 45th SW property. These operations have involved the use of toxic and hazardous materials. Under RCRA and the HSWA Permit (CCAFS Permit No. FL2800016121) issued by the USEPA, the 45th SW was required to perform an investigation to determine the nature and extent of contamination from Solid Waste Management Unit (SWMU) No. 52, Area 55.

SITE DESCRIPTION AND HISTORY

Area 55 is located at CCAFS on the north side of Lighthouse Road approximately 5,000 feet east of the Banana River (See Figure 1). The site is approximately five acres and includes several large structures on a developed and partially paved area measuring approximately 500 by 700 feet. A fence surrounds Area 55. Vegetative cover consisting of dense hardwood and palmetto brush exists to the east, west, and north.

Area 55 was constructed as the "GE Waveguide Facility" in 1956 and was used by the USAF for government-classified electronic testing of rocket electrical and guidance systems. The facility supported launch operations at Space Launch Complex 17 through the 1960s and intermittently through the 1970s. In 1980, the facility was transferred to NASA for use in



In accordance with RCRA Section 7004(b), this Statement of Basis summarizes the proposed remedy for CCAFS Area 55. For detailed information, consult the Area 55 RFI Report which is available for review at the 45th SW Environmental Management Office (See "How Do You Participate") or on-line at http://www.mission-support.org/45SW_IRP_EA.

support of the Delta Program. In 1988, Area 55 was transferred back to USAF control.

Currently, only a few of the remaining structures are active. Outlying structures have been abandoned or demolished. Several potential sources of contamination were identified based on the history of operations at Area 55. These include: vehicle fueling areas, floor drains, septic tanks, drainfields, and discharges from various sumps and pumps.

Although Area 55 is located on USAF property, a Memorandum of Agreement was established with NASA, through which NASA agreed to conduct the investigations required under the CCAFS HSWA permit. NASA conducted the following investigations:

- 1988-1993: NASA conducted a groundwater investigation in order to assess the extent of volatile organic compounds (VOCs) in groundwater. This investigation was conducted in several phases in order to characterize the contaminant plume over time.
- 1993-1998: An RFI was performed, detailing sampling and analysis of the site soil and groundwater. These results were compared with screening criteria in order to evaluate the need for corrective action. This comparison indicated that potential human health risk may be posed by site groundwater.
- 1998: A Long Term Monitoring (LTM) Work Plan was submitted and LTM was initiated. The 45th SW IRP team felt it was incumbent to implement LTM immediately following the RFI in order to ensure that groundwater contaminants were appropriately monitored and tracked.

SUMMARY OF SITE RISK

Formal human health and ecological risk assessments (HHRA and ERA) were not conducted for Area 55. Detected contaminant

concentrations were simply compared directly with screening values. The results of this direct comparison were used to determine whether the contaminant might pose potential harm to humans or the environment.

The Chemicals of Potential Concern (COPCs) identified for human health during the RFI were:

- Groundwater: 1,2,4-trichlorobenzene, bis(2-ethylhexyl)phthalate, trichloroethylene, vinyl chloride

Ten chemicals in groundwater exceeded at least one of the screening criteria; however, only 1,2,4-trichlorobenzene, bis(2-ethylhexyl)phthalate, trichloroethylene, and vinyl chloride exceeded Maximum Contaminant Levels (MCLs) established by EPA. Therefore, only these four compounds were identified as contaminants of potential concern.

Thirteen chemicals in soil exceeded at least one of the screening criteria. In most cases, the only criteria exceeded was a very conservative ecological criteria (human health and other ecological criteria were not exceeded in these cases). As risk management decisions were taken into consideration, several of these contaminants were also found to be the result of laboratory contamination (methylene chloride) or were within background levels (arsenic and vanadium). Total chromium was the only soil contaminant that exceeded residential human health screening values. However, since no residential screening value exists for total chromium, the residential screening value for hexavalent chromium was used as a conservative surrogate (hexavalent chromium is a much greater health and environmental risk concern than total chromium). Additional sampling was conducted in the area of the chromium exceedance. In the additional samples, the residential screening criterion (for hexavalent chromium) was not exceeded.

WHAT ARE THE CLEANUP OBJECTIVES AND LEVELS?

The remedial action objective (RAO) is to protect humans from exposure to shallow groundwater and prevent consumption of groundwater from the shallow aquifer (where contaminant concentrations are higher than regulatory standards). Table 1 lists the COPCs present at Area 55. The first column lists the chemical name, the second column lists the maximum concentration detected in the impacted media at Area 55 during the RFI, and the last column presents the clean-up level to be achieved at the site.

TABLE 1—CLEANUP GOALS

Site-Related Chemicals of Potential Concern (COPCs)	Maximum Detected Concentration (ug/L)	Site-Specific Clean-up Level ¹ (ug/L)
GROUNDWATER		
1,2,4-trichlorobenzene	160	70
Bis(2-ethylhexyl)phthalate	46	6
Trichloroethylene	4	3
Vinyl Chloride	7	1

¹ Clean-up level represents the most stringent value among USEPA and FDEP criteria at the time of the final investigation..

CLEANUP ALTERNATIVES FOR AREA 55

Clean-up alternatives are different combinations of plans to restrict site use and to contain, remove and/or treat contamination in order to protect public health and the environment. Only two alternatives were considered because of low levels of contamination present at the Area 55. The clean-up alternatives considered for the Area 55 are summarized below.

No Action: Evaluation of the No-Action alternative is used as a basis for comparison with other alternatives. Under this alternative, no remedial action would be taken to reduce human health risks or restrict site use. No

monitoring of COPC concentrations in the groundwater would be performed. It was determined this alternative would not attain the RAO.

Land Use Controls with Natural Attenuation

Long Term Monitoring: Under this alternative, material processes such as biological degradation, dispersion, advection, and adsorption would reduce COPC concentrations to cleanup levels over time. Groundwater would be regularly sampled and analyzed to monitor and document the decrease in contaminant concentrations. Data collected during the RFI and other Basewide assessments indicate that biodegradation will likely reduce contaminant concentrations below cleanup levels within 8 years. Additionally, the 45th SW would implement site-specific land use controls to protect against exposure to contaminated groundwater and to prevent consumption of shallow groundwater. In the long term, this remedy alternative will meet the RAO and will also allow re-evaluation to determine if the remedy is working and provide an opportunity for change, if necessary. The 45th SW, USEPA, and FDEP have entered into a Memorandum of Agreement (MOA), which outlines how land use controls will be managed at the 45th SW. The MOA requires periodic inspections, condition certification, construction project coordination, and agency notification. Site-specific details can be found in the Area 55 Land Use Control Implementation Plan (LUCIP).

EVALUATION OF REMEDY ALTERNATIVES

Each cleanup alternative was evaluated to determine how each potential remedy would comply with the four general standards for corrective measures. The four general standards for corrective measures are:

- Overall protection of human health and the environment;
- Attain media cleanup standards;
- Control the sources of releases; and

- Comply with standards for management of wastes

The second alternative (Land Use Controls and Natural Attenuation with Long-Term Monitoring) meets each of the above criteria, while the no action alternative remedy would not meet them.

LAND USE CONTROLS AGREEMENT

By separate MOA dated 23 December 1999, with USEPA and FDEP, CCAFS, on behalf of the Department of the Air Force, agreed to implement base-wide, certain periodic site inspection, condition certification, and agency notification procedures designed to ensure the maintenance by installation personnel of any site-specific land use controls deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the USAF's substantial good-faith compliance with the procedures called for therein, reasonable assurances would be provided to the USEPA and FDEP as to the permanency of those remedies which included the use specific land use controls.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by the USAF, USEPA, and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent on CCAFS's substantial good-faith compliance with the specific land use control maintenance commitments reflected therein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

WHAT IMPACTS WOULD THE CLEANUP HAVE ON THE LOCAL COMMUNITY?

There would be no impacts to the surrounding communities because groundwater underlying the site is not used for potable water. The natural attenuation and LTM alternative includes administrative actions to limit the use of groundwater until cleanup levels have been reached and to ensure that construction activities do not cause contaminant re-distribution. Additionally, residential use of Area 55 is not occurring nor is it expected in the near future. As long as CCAFS remains an active gateway for the aerospace industry, Area 55 is expected to continue operating in an industrial capacity.

WHY DOES THE 45th SW IRP TEAM RECOMMEND THIS REMEDY?

The team recommends the proposed remedy because the naturally occurring biodegradation process observed at the site (and predicted with Base groundwater models) are sufficient for the removal of the low contaminant concentrations remaining in groundwater at Area 55. The LTM will be used to assess and document reduction in contaminant concentrations to the cleanup goals. The land use controls will also prevent exposure to contaminants prior to the cleanup levels being achieved. The proposed remedy meets the four general standards for corrective measures.

NEXT STEPS

The 45th SW IRP team will review all comments on this SB to determine if the proposed remedy needs modification prior to implementation and prior to incorporating the proposed remedy into the CCAFS HSWA permit. If the proposed remedy is determined to be appropriate for implementation, then the LTM program will be continued, the land use controls will be initiated, and a LUCIP will be developed and incorporated into the MOA.



LAND USE CONTROL IMPLEMENTATION PLAN

AREA 55 SOLID WASTE MANAGEMENT UNIT 52 (SWMU NO. 52) 45TH SPACE WING CAPE CANAVERAL AIR FORCE STATION BREVARD COUNTY, FLORIDA

Facility Description

Area 55, Solid Waste Management Unit 52 (SWMU No. 52) was constructed as the "GE Waveguide Facility" in 1956 and was used by the United States Air Force (USAF) for government-classified electronic testing of rocket electrical and guidance systems. The facility supported operations at Space Launch Complex 17 through the 1960's and intermittently through the 1970's. The facility was transferred to NASA in 1980 for use in support of the Delta Program. On August 17, 1988, Area 55 was transferred back to USAF control. Currently, only a few of the facility structures remaining are active; the outlying structures were abandoned or demolished. Reportedly, two 500-gallon aboveground diesel or heating oil fuel tanks were staged on the west side of the site. Several potential sources of contamination were identified based on the history of operations at Area 55. These include: vehicle fueling areas; floor drains from the chemical drum storage and hazardous waste staging areas; a discharge from the MOD III Building; two septic tanks and associated drain fields; and a drain from the utility sink at the Maintenance Building.

Location

(Reference Site Map on last page of this document)

Site Plan Coordinate	Northing	Easting
North	1496154.79	790540.40
West	1495719.59	790269.70
South	1495403.08	790636.19
East	1495867.44	790844.42

Objective

Implementation of site-specific land use controls to protect against exposure to contaminated shallow groundwater and to prevent consumption of the shallow groundwater.

Land Use Controls (LUCs) to be Implemented:

Administrative:

- The property will be prohibited from residential or other non-industrial development without prior written notification to the Florida Department of Environmental

LUCIP
AREA 55 (SWMU NO. 52)
CAPE CANAVERAL AIR FORCE STATION
OCT 2001

Protection (FDEP) and the United States Environmental Protection Agency (USEPA) concerning the SWMU land use change. Dependent on site conditions and the nature and intensity of the proposed land use change, additional site investigations and assessments could be required for the USAF. Based on these analyses, additional remedial measures may be required prior to land use change.

- Perform and document baseline LUC audit upon finalization of the Statement of Basis.
- Perform and document quarterly LUC compliance inspections in accordance with 45th SW LUC Operations Manual.
- Perform, document, and report an annual audit on LUC implementation, maintenance, and compliance in accordance with the 45th SW LUC Operations Manual and the current CCAFS Corrective Action Management Plan (CAMP).
- The property Land Use Control Implementation Plan (LUCIP) shall remain in effect until:
 - a) Changes to applicable Federal and State risk-based clean-up standards occur which indicate site contaminants no longer pose potential residential risk; or
 - b) Reduction in site contaminant concentrations to below Federal and State residential risk-based clean-up standards occurs.
- In the event of property realignment, transfer, or re-use for non-industrial or non-commercial purposes, assessment and remediation may be necessary to ensure that impacts to ecological receptors are not increased or to mitigate potential ecological impacts where residual contamination exists.

Groundwater:

- The consumptive use of the site's surficial aquifer groundwater will be prohibited.
- Incidental consumption and dermal exposure to groundwater from the surficial aquifer will be prevented. This will be addressed by the project proponent's health and safety advisor.
- Groundwater will not be contacted, pumped, or discharged during property development, maintenance, or construction, without:
 - a) USAF review, coordination, and approval of the proposed construction/development plans via AF Form 103 (Base Civil Engineer Work Clearance Request), 332 (Base Civil Engineer Work Request), 813 (Request for Environmental Impact Analysis), or similar process;
 - b) Ensuring proper engineering controls are in-place so that unauthorized release or disposal of the affected media (groundwater) does not occur. This includes conducting appropriate testing and developing a disposal plan in accordance with the LUC Operations Manual prior to any pumping or discharge of groundwater; and
 - c) Use of proper personal protection equipment by site workers, as

LUCIP
AREA 55 (SWMU NO. 52)
CAPE CANAVERAL AIR FORCE STATION
OCT 2001

- determined by the project proponent's occupational health and safety advisor.
- USAF will institute a long term monitoring (LTM) program of groundwater in the surficial aquifer in accordance with an approved LTM work plan and the CAMP as part of the CCAFS HSWA Permit. Reports will be submitted annually, along with revised work plan recommendations, until such a time as the relevant regulatory agencies agree that contaminant concentrations in groundwater no longer warrant long term monitoring.
 - The site will be posted with proper warning signs in accordance with the LUC Operations Manual and the CCAFS HSWA permit.

Statement of Basis:

The Statement of Basis (SB) is currently being reviewed. It is anticipated that the SB will be accepted/incorporated into the HSWA Permit, scheduled for issuance early in 2002.

Additional Information:

Long Term Monitoring Plan: Natural Attenuation (NA) is evaluated through LTM. Per the LTM Work Plan, monitoring well locations will be sampled on a semi-annual basis. The scope and magnitude of the LTM program are reviewed and adjusted annually, based on the most recent data trends.

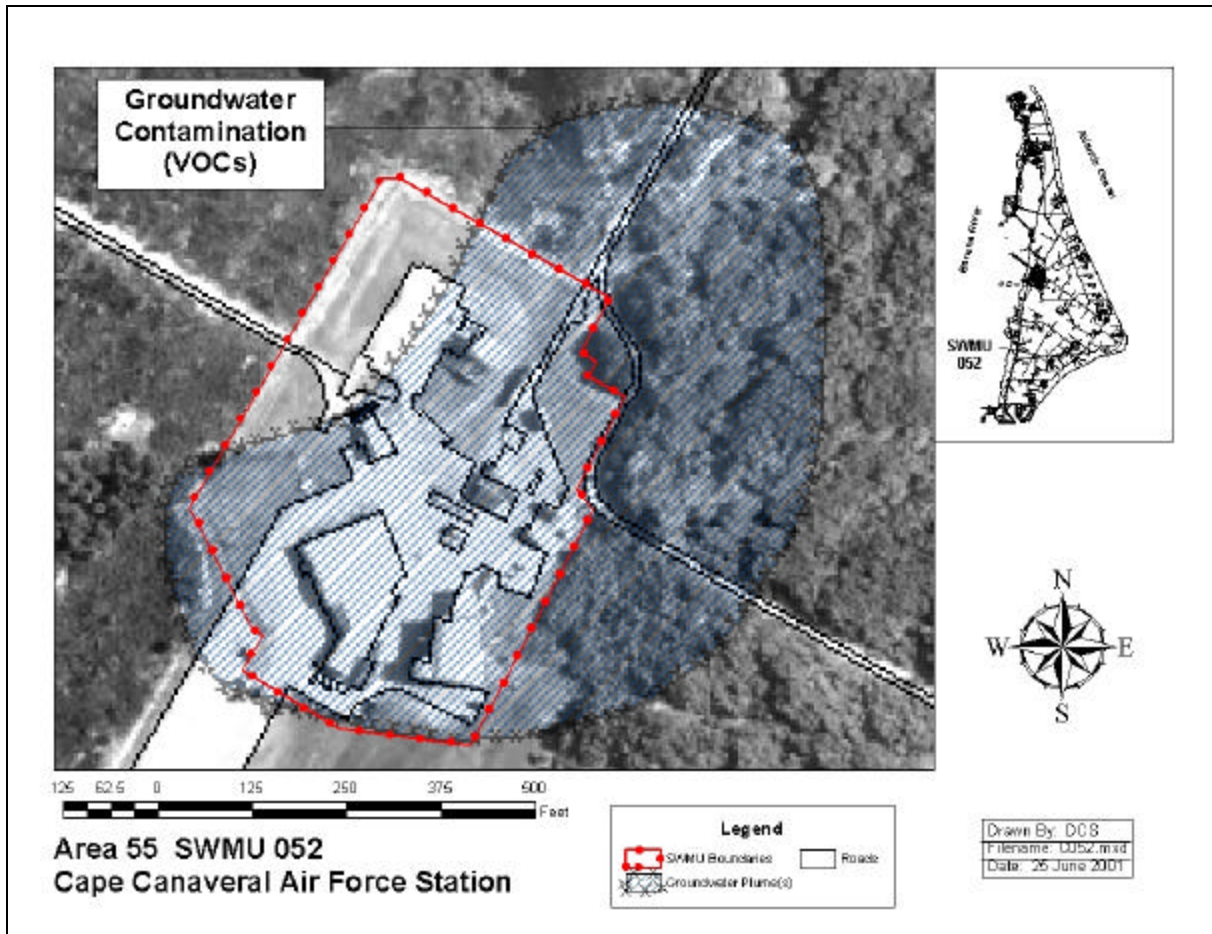
Pertinent Document Reference:

RCRA Facility Investigation Report/Long Term Monitoring Work Plan, Area 55, SWMU No. 052, HSW Environmental Group, February 1998.

Annual Groundwater Monitoring Report (September 1999 and March 2000, Semi-Annual Events), Area 55, SWMU No. 52, HSW Environmental Group, July 2000.

LUCIP
AREA 55 (SWMU NO. 52)
CAPE CANAVERAL AIR FORCE STATION
OCT 2001

Area 55 – Site Map



Please contact the 45 SW Installation Restoration Program Office to obtain additional information, including: the 45 SW Land Use Controls Operation Plan; the CCAFS HSWA Permit; a complete record of corrective actions at Area 55; or other related documents, guidance, and regulations. The IRP office can be reached by phone at (321) 853-0965. Information can also be obtained via the IRP website at http://www.mission-support.org/45SW_IRP_EA